

A Revision of the Hungarian Fauna of Rhynchobdellid Leeches (Hirudinea)

By

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In the working out of the European leech fauna, Hungary was among the first in the second half of the last century. Indeed, subsequently to the second edition of MOQUIN-TANDON's leech monography (1846) — having been also the basic work on the leech fauna of France — Hungary was the first to submit publications on her leech fauna, corresponding, of course, to the standard of contemporary information. The basic work was made by L. ÖRLEY (7), and mainly by I. APÁTHY (1, 2, 3). Unfortunately, there was then nothing much done in the almost three-quarters of a century that followed. There were published no more but some few, chiefly faunistical papers (5, 9, 10, 11).

The need for a revision of the Hungarian leech fauna derives, first, from the working out of the materials gathered in the course of the extensive faunistical collectings of the last years, second, from a general survey and preparation of a MS for the fascicle on leeches of the serial work *Fauna Hungariae*. Also, the taxonomic assessment of the several species had, in the meantime, more or less changed due to the rapid increase of informations.

On the present occasion, I submit the results obtained from the revision of the species belonging to the order Rhynchobdellae.

Of the known, about 150, species of proboscideate leeches, there live only 15 in Europe, that is, no more than 10 per cent of the described taxa. The revision of the rather meagre material which remained of the collection of the Hungarian Natural History Museum, but especially that of the intense collectings of the last few years, resulted in the showing of some species new for the fauna of Hungary. Two of them belong to the Rhynchobdellid leeches (*Cystobranchnus fasciatus* KOLLAR 1842, and *Haementeria costata* FR. MÜLLER 1846). Thus we know 10 species from Hungary. The other species new for our home fauna shall be listed and evaluated in another paper (11). There can be expected the occurrence of yet three other leech species in Hungary, to be shown by future collectings, namely *Cystobranchnus mammillatus* MALM 1863, *Theromyzon maculosum* RATHKE 1862, and *Boreobdella verrucata* FR. MÜLLER 1844, so that on the basis of our present information, we may expect the occurrence of a total of 13 Rhynchobdellid leech species in Hungary. One of the two other species known yet from Europe, namely *Piscicola fadjejewi*,

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described lately by EPSTEIN (1961), occurs only on fishes living in the northern territories of the Soviet Union, while the other one, *Batrachobdella alghira* MOQUIN-TANDON 1846, inhabits only SW Europe, and presently found also in Crimea. Their occurrence in Hungary is thus unlikely.

On this occasion, I list but basic data concerning the species in question, since my primary aim is the publication of the entire revised material deposited in the collection of the Hungarian Natural History Museum.

Fam: Piscicolidae

1. *Piscicola geometra* (LINNAEUS 1758). — Concerning the size, color, and especially the color and arrangement of the stelliform pigment-cells, a highly variable species. Owing to these qualities, the animal had been described under no less than 8 different names. This leech is the temporary parasite of diverse freshwater and brackwater fish species. One may encounter it in every larger standing water or very slowly streaming ones carrying fish. They settle, first of all, in weedy waters, among reeds, and in the shoreline vegetation.

Localities: Budapest: Óbuda (1 ex., coll. APÁTHY), Rákospalota (2 ex., coll. APÁTHY); Veresegyháza (2 ex., 28 Oct. 1959, leg. STEINMANN); Mohács (1 ex., leg. PORGÁNYI); Szeged: Fehértó (from a carp, 12 ex., 1959, leg. Mrs. SZÉKELY); Tata (from the draining ditch of the Nagyforrás, 1 ex., 8 Aug. 1940, leg. Soós); Velence: Lake Velence (1 ex., Oct. 1951, leg. MÓGER); Balatonfüred (among stones along the shore, 1 ex., 10 July, 1951, leg. STILLER); Balatonrendes: Pálköve (among weeds in the Lake Balaton, 1 July, 1959, leg. PAWLOWSKI and Soós); Balatonszepezd (from weeds along the shore of the lake, 5 ex., 1 July, 1959, leg. PONYI and Soós); Siófok (from a carp caught under ice, 1 ex., 2 Febr. 1938, leg. Mrs. FEJÉRVÁRY); Tihany (reedy inlet at Aszófő, 15 ex., 13 Sept. 1958, leg. MÓGER and ZSIRKÓ; small inlet, weedy waters, 1 ex., 27 May, 1950, leg. STILLER; among rocks, 1 ex., 22 May, 1950, leg. STILLER; 2 ex., 3 June, 1950, leg. STILLER); Vörs, Kisbalaton: Nagycölömpös (1 ex., 25 July, 1950, leg. ANDRÁSSY and STILLER).

2. *Cystobranchus respirans* (TROSCHER 1850). — According to literature, an external temporary parasite of various freshwater fishes, especially *Barbus barbus*, *Thymallus thymallus*, and *Salmo fario*. TROSCHER based the species on exemplars collected on *Acipenser sturio*. At present, there are no home specimens in the collection of the Natural History Museum, with only 3 specimens from Boldogháza (Transsylvania) from the Carpathian Basin, collected by ÖRLEY (7, p. 108) on the gills of salmon. For my part, I have examined specimens on two occasions, originating from fishes in the Lake Balaton. These exemplars had been sent to me for identification by the workers of the Biological Research Institute in Tihany (I. JACZÓ, and O. SEBESTYÉN), in the very first years of the forties.

3. *Cystobranchus fasciatus* (KOLLAR 1842). — A stenozoic species, known only from *Silurus glanis*. It is easily recognizable by its striking size and the characteristical transverse pattern. The collection of the Natural History Museum has only 3 specimens, caught near Csongrád, identified in earlier times by ÖRLEY, and later also APÁTHY as *C. respirans*. As ÖRLEY writes it (7, p. 108), he received the specimens from professor J. ÉDER, who had the leeches as taken from the skin of a fish weighing 50 kg, caught in the river Tisza in the autumn. The species is new for Hungary.

Fam: Glossiphoniidae

4. *Helobdella stagnalis* (LINNAEUS 1758). — The species is easily recognizable by the small size (5—10 mm), patternless, unicolorous body, 1 pair of eyes, chitinous dorsal scute, glabrous skin without sensory papillae, and genital pores separated by a single ring only. The animal is sanguivorous on the body fluids of insect larvae (mainly *Chironomus*) and Crustaceans, and occasionally also on snails. A frequent, widely ranging species in both standing and streaming waters, but, due to its small size, it is rarer than expected in zoological collections.

Localities: Mezöcsát: Lake Deák (1 ex., 3 May, 1937, leg. WOYNÁROVICH) Velence (shore of the lake, 5 ex., 25 Nov. 1958, leg. Soós); Dinnyés: Kajtor Ditch (4 ex., 22 March, 1960; 1 ex., 12 Apr. 1960, leg. ZSIRKÓ); Fenékpusztá (on the rocky shore of the Lake Balaton, 7 ex., 1 July, 1959, leg. PAWLOWSKI and Soós); Szántód (the shore of the Lake Balaton, 1 ex., 30 June, 1959, leg. Soós); Tihany (1 ex., 28 Aug. 1937, leg. Soós; reedy inlet at Aszfő, 11 ex., 12 Sept. 1958, leg. Soós; Inner Lake, 4 ex., 13 Sept. 1958, leg. Soós); Kis-Balaton (1 ex., 29 July, 1911, leg. HORVÁTH; Alsó-tó, 10 ex., 22 Aug. 1950, leg. ANDRÁSSY and STILLER).

5. *Glossiphonia complanata* (LINNAEUS 1758). — Our commonest Rhynchobdellid leech species. The species is easily recognizable by its size (10—30 mm), the 3 pairs of eyes arranged in two nearly parallel lines, 3 pairs of sensory papillae situated in longitudinal rows on ring a_2 , the gaudy pattern of its body (cartilaginous hard when contracted), and the genital pores separated by two annuli. The animal is sanguivorous on snails, occurring in several standing and streaming waters.

Localities: From streaming waters: Rajka (Danube, on shoreline rocks, 2 ex., 14 Oct. 1958, leg. by the collaborators of the Danube Research Station); Dunaremete (on a shoreline rock, 1 ex., 14 Oct. 1958, leg. DRS); Gönyű (Danube, 1 ex., 24 Sept. 1934, leg. DUDICH; 1 ex., Sept. 1935, leg. KLEINER); Szob (Danube, 1 ex., 12 Oct. 1934, leg. DUDICH); Nógrádverőce (Danube, 9 ex., 12 Oct. 1961, leg. Mrs. VAJDA); Alsógöd (Danube, on shoreline rocks, 9 ex., 30 Oct. 1957, leg. BERCZIK; 2 ex., 28 Oct. 1959, leg. Soós); Budapest (cut-off Danube reach at Újpest, 4 ex., 19 Sept. 1959, leg. ESZTERGÁLYOS; shoreline rocks under the Mt. Gellért, 5 ex., 19 Sept. 1958 leg. students of the State Ballet School; 10 ex., 21 Sept. 1958, leg. ZSIRKÓ; 1 ex., 25 Oct. 1959, leg. ZSIRKÓ; 25 ex., 10 Oct. 1961, leg. ZSIRKÓ; on rocks below the Szabadság bridge, 3 ex., 16 Oct. 1959, leg. KERTÉSZ and ZICSÍ); Budafok (shore of the Danube near the Isle Háros, 2 ex., 22 Oct. 1906, leg. SZÜTS); Mts. Gerecse: Szomód (brook, 1 ex., 14 July, 1942, leg. Soós), Lovas (the Királykúti brook, 1 ex., 20 July, 1932, leg. DUDICH); Balatonudvari (brook; 1 ex., 1 July, 1959, leg. PAWLOWSKI and Soós). — From standing waters: Tata (Cseke, Lake, 1 ex., 6 July, 1940, leg. Soós; from reed-leaves, 1 ex., 9 July, 1959, leg. Soós); Pákozd: Bella valley (1 ex., 13 May, 1959, leg. Mrs. KAKASS); Balatonkenese (reedy shore, 2 ex., 19 Nov. 1959, leg. AGÓCSY); Balatonrendes: Pálköve (on rocks, 1 ex., 1 July, 1959, leg. PAWLOWSKI and Soós); Balatonvilágos (3 ex., Aug. 1935, leg. KOLOS-VÁRY); Tihany (reedy inlet at Aszfő, 4 ex., 28 Aug. 1937, leg. Soós; 4 ex., 12 Sept. 1958, leg. Soós; shore below Gödrös, 62 ex., 12 Sept. 1958, leg. Soós; Kis-öböl, 8 ex., 21 Aug. 1937, leg. Soós; the Örvényes inlet, 1 ex., 29 Aug. 1937, leg. Soós; 2 ex., 22 May, 1950, leg. STILLER); Kis-Balaton (1 ex., 29 July, 1911, leg. HORVÁTH; 1 ex., 11 July, 1936, leg. KOLOS-VÁRY); Kővágóörs (Fűzfa spring, 1 ex., 31 July, 1937, leg. SZALAY).

5 a. *Glossiphonia complanata* f. *concolor* (APÁTHY 1888). — A form of disputed taxonomic value even to date. APÁTHY described it as a distinct species, and some authors consider it is such even today (LISKIEWICZ, LUKIN, MANNSFELD), while others (BENNIKE, VERRIEST) regard it as a subspecies. Other, again, relegate it simply to among the synonyms of *complanata*. Unfortunately, APÁTHY's type specimens had been destroyed, hence the question cannot

be decided by their examination. In this place, I note only that APÁTHY's specific taxon *concolor* cannot be upheld either as a distinct species or as a subspecies, since the characteristic features given between it and *complanata* show all transitional possibilities, even though the difference is very strong between the extreme forms. I am of the conviction, substantiated also by LIVANOW's very thorough anatomical studies, that the form *concolor* is nothing else than an ecological one, adapted primarily to conditions in standing waters, of the species *complanata*. This latter is a dominant form of rather the streaming waters, while f. *concolor* is that of standing water bodies. However, a more detailed discussion of the problem will be given in another paper.

Localities: From streaming waters: Göd (in the outlet of a spring: 1 ex., 10 Sept. 1910, leg. L. Soós); Örvényes, the Pécsely brook (2 ex., 1 July, 1959, leg. PAWŁOWSKI and Soós); Balatonarács: the Koloska brook (1 ex., 19 Aug. 1959, leg. Soós). From standing waters: Solymár (lake, 1 ex., 7 May, leg. STEINMANN); Pákozd: Bella valley (1 ex., 29 Oct. 1959, leg. KASZAB); Balatonrendes: Pálköve (on shoreline rocks, 3 ex., 1 July, 1959, leg. PAWŁOWSKI and Soós); Szántód (the shore of the Lake Balaton, 1 ex., 30 June, 1959, leg. Soós); Tihany (reedy inlet at Aszfő, 3 ex., 13 Sept. 1958; shore below Gödrös, 19 ex., 13 Sept. 1958, leg. Soós; shore near Biological Institute, 3 ex., 21 Aug. 1937, leg. Soós).

6. *Glossiphonia heteroclita* (LINNAEUS 1761). — From its congener *complanata*, the taxon can be distinguished by the considerably smaller size (up to 10 mm), the soft body without any pattern, the different arrangement of the 3 pairs of eyes, the smooth skin without sensory papillae, and the single, common genital pores, not separated by rings. Also this leech is sanguivorous on snails. Contrary to *complanata*, it occurs preponderantly in standing, or rarely in very slowly streaming, waters. There are generally three forms distinguished: f. *hyalina* O. F. MÜLLER 1774, f. *papillosa* BRAUN 1805, and f. *striata* APÁTHY 1888. As several authors have found, subsequently to the description of these forms, a host of intermediate forms, no taxonomic value can be attributed to these taxa. Unfortunately, there is at present only a very slight *heteroclita* material in the collection of the Natural History Museum, but, even so, the single forms can usually be recognized and separated. The form *striata*, described by APÁTHY as a new species on the basis of specimens collected at that time in Dunaharaszti, is not now represented in the collection.

Localities: f. *typica*: Tata: Cseke Lake (2 ex., 6 July, 1940, leg. Soós). — f. *hyalina*: Balatonmáriafürdő: Öv Ditch (1 ex., 1 July, 1959, leg. PAWŁOWSKI and Soós); Kis-Balaton (Alsó-tó, 1 ex., 21 Aug. 1950, leg. ANDRÁSSY and STILLER). — f. *papillosa*: Dinnyés: Kajtór Ditch (3 ex., 22 March, 1960, leg. Soós; 11 ex., 12 Apr. 1960, leg. ZSIRKÓ; 1 ex., 21 June, 1962, leg. ANDRÁSSY); Balatonkenese (reedy shore, 1 ex., 19 Nov. 1959, leg. AGÓCSY); Tihany (reedy inlet at Aszfő, 2 ex., 12 Sept. 1958, leg. Soós).

7. *Batracobdella paludosa* (CARENA 1824). — Recognizable by the soft, almost entirely smooth body with at most accessory papillae, 2 pairs of eyes, and the seven lateral diverticula of the crop. Usually dark green or olive brown. The animal is sanguivorous on amphibia and snails. It was found mostly in standing waters, mainly marshes, the peat-holes, backwaters. Up to the latest times, we knew it only from Tótszentpál. These specimens had been identified as *paludosa* by ÖRLEY (7, p. 104), but APÁTHY considered them to be the immature exemplars of *Glossiphonia heteroclita* (3, p. 13).

Localities: marshes in Com. Somogy: Tótszentpál (6 ex., leg. MADARÁSZ); Örvényes: mouth of the Pécsely brook (2 ex., 14 Aug. 1951, leg. STILLER).

8. *Theromyzon tessulatum* (O. F. MÜLLER 1774). — The young animal is easily recognizable by constantly changing its shape to an extraordinary degree. The young leeches are highly elongated, dark (green-brown); the sexually mature ones oval, lighter in color, slightly transparent, jelly-like. They have 4 pairs of eyes arranged in two parallel lines, and genital pores separated by four annuli. An euryzoic species, sanguivorous on diverse water-birds. One can find them mostly around the eyes or the nasal apertures, that is, in the nasal to pharyngeal ducts. They can be collected chiefly in the coastal zones of larger lakes, seldom in smaller standing water, occurring only exceptionally in streaming waters.

Localities: Adony: fisheries (1 ex., 15 March, 1959, leg. HORVÁTH); Dinnyés, Kajtor Ditch (from *Utricularia*, 1 ex., 21 June, 1962, leg. ANDRÁSSY); Tapolcafé (1 ex., 23 July, 1937, leg. SZEMES); Kis-Balaton (Alsó tó, 1 ex., 24 Aug. 1950, leg. ANDRÁSSY and STILLER); Felső-tó, 3 ex., 25 Aug. 1950, leg. ANDRÁSSY and STILLER).

9. *Hemiclepsis marginata* (O. F. MÜLLER 1774). — The easiest feature to recognize it by is the widening anterior portion (like a sucker) of its body, the 2 pairs of eyes, the low sensory papillae arranged in 4 longitudinal rows, and the genital pores separated by two annuli. The leech feeds on the body of mostly amphibia and their larvae, but it is sanguivorous also on fish, indeed, according to AUTRUM (4, p. 9), also on tortoise. It occurs in larger standing waters.

Localities: Budapest (on the rocks along the shore of the Danube below the Mt. Gellért, 2 ex., 23 Dec. 1959, leg. ZSIRKÓ; 1 ex., 10 Oct. 1961, leg. ZSIRKÓ); Budafok (inlet of the Danube near the Isle Háros, 1 ex., 22 Oct. 1906, leg. SZÜTS); Dinnyés: Kajtor Ditch (2 ex., 22 March, 1960, leg. Soós); Pákozd: Bella valley (1 ex., 24 Nov. 1959, leg. Soós); Tihany (reedy inlet near Aszófő, 10 ex., 12 Sept. 1958, leg. Soós; rocky shore near the Biological Institute, 1 ex., 28 Aug. 1937, leg. Soós).

10. *Haementeria costata* (FR. MÜLLER 1846). — This species of varying color, its size 20—70 mm, can be easily recognized by the one pair of eyes, the interrupted, black, longitudinal stripe in the dorsal midline, and the genital pores separated by two annuli. Its host is the pond tortoise (*Emys orbicularis*). According to some data, it is allegedly sanguivorous also on birds. The leech feeds occasionally also on human blood (it can pierce only the soft skin between the toes). The species lives preponderantly in very weedy, clear, standing or but slowly streaming waters. New for the fauna of Hungary.

Localities: Orgovány (draining ditch, 11 ex., 2—3 Sept. 1961, leg. SZABÓ; 2 ex., 21 Oct. 1961, leg. Soós); Balatonfenyves (draining ditch of the Nagy-Berek, 4 ex., 27 Aug. 1962, leg. K. FARKAS). Collected in all three cases from the pond tortoise.

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